United States Environmental Protection Agency / Region 4

Risk Management Program Inspection Report

Chevron Pascagoula Refinery

Pascagoula, Mississippi
September 8-11, 2014

1. Introduction

Several planning and legislative initiatives are part of the Environmental Protection Agency's (EPA) efforts to reduce the likelihood and severity of chemical accidents. These include the National Contingency Plan, the Emergency Planning and Community Right-to-Know Act, and the Accidental Release Prevention requirements under Section 112(r) of the Clean Air Act (CAA), as amended in 1990. This report outlines an inspection of the General Duty Clause and Risk Management Program as mandated by Section 112(r)(1) and Section 112(r)(7) of the CAA respectively.

The focus of this inspection is the Risk Management Program for the refinery processes at the Chevron Pascagoula Refinery (Chevron) located in Pascagoula, Mississippi. This facility was selected for inspection because it experienced an accident in its Reformate Splitter Unit process in November 2013 which resulted in an employee death. The inspection, which was conducted September 8-11, 2014, consisted of an examination of program documentation as well as site reviews of various aspects of facility operations. Personnel from the facility participated throughout the inspection. Numerous documents were duplicated for review off-site. This report will provide a background of the facility and a listing of observations.

2. Background

Chevron is located in Pascagoula, Mississippi. The Refinery receives crude oil by tanker and pipeline for processing into various products. The process by which crude oil is manufactured into various saleable products such as gasoline and propane is known as refining. Petroleum refining involves the separation of crude oil into several components using distillation methods. Heavier hydrocarbon compounds are further processed by cracking and subsequent combining or rearranging. Many of the refining processes include the formation, combining, or rearranging of regulated flammable substances. Regulated flammable substances are present at Chevron as flammable mixtures. Primary components of the mixtures are propane, butane, pentane and propylene. Secondary components of the mixtures can include: hydrogen, methane, ethane, ethylene, butene, isobutane, isobutene, 2-butene-cis, 2-butene-trans, 1,3-butadiene, 2-pentene (E) 2-pentene(Z) and isopentane. There are 27 regulated processes at Chevron that are subject to the Risk Management Program requirements of 40 CFR 68 and EPCRA Section 302.

A description of the November 15, 2013 accident is below. Inspection and facility background specifics are also below, summarized as in Table 1.

November 15, 2013 Accident

On November 15, 2013, at approximately 1:29 am, an explosion occurred while operators were in the process of lighting burners on fired heater F-8007 in the Reformate Splitter Unit at Chevron. One burner had been lit on the fired heater on the previous evening (November 14 at approximately 7:20 pm). At approximately 1:20 am, operators lit the next 6 burners in approximately 4 minutes. During this period, F-8007 became "bogged[1]." In response, operators opened the fired heater stack damper and inlet air registers. The addition of air rapidly returned the oxygen lean and fuel rich portion of the fired heater to the flammable region, resulting in the explosion. One of the four field operators suffered fatal injuries as a result of the explosion, and a subsequent fire occurred.

TABLE 1: Inspection Information Summary

Inspection Team

Lead Inspector: Deanne Grant, EPA, Region 4
Inspectors: Eddie Chow, EPA, Region 4
Mary Wesling, EPA Region 9
Craig Haas, EPA, Headquarters, OECA
Jeffrey Bland, Mississippi Department of Environmental Quality
Dan Roper, Eastern Research Group
Anthony Gaglione, Eastern Research Group

Date of Facility Visit: September 8-11, 2014

Facility Identification

Name: Chevron Pascagoula Refinery
Street Address: Industrial Highway 611 South
City: Pascagoula County: Jackson State: Mississippi Zip: 39581
EPA Facility ID No: 1000 0008 6989
Facility DUNS: 1382555
Latitude: 30.343889
Longitude: -088.493889

Name, address and phone of corporate parent company:

Owner/Operator: Chevron Pascagoula Refinery
Mailing Address: Industrial Highway 611 South
City: Pascagoula State: Mississippi Zip: 39581
Phone: (228) 938-4600

[1] Bogging is a condition that can occur in furnaces during their start-up in which oxygen levels become low, leading to unburned fuel in the furnace and the flame not being properly sustained. A surge of oxygen into a bogging furnace can potentially result in an explosion, as the surge of oxygen mixes with the unburned fuel. The term "huffing" is also used to describe a bogging condition that reaches a more hazardous (greater potential for explosion) condition.

Name, title, and email of person responsible for 40 CFR Part 68 implementation:

Name: Kathy Boyers
Title: OE/PSM Manager
Phone: (228) 934-7099
Email: khbo@chevron.com

Name and title of emergency contact:

Name: Refinery Shift Leader
Title: Refinery Shift Leader
Phone: (228) 938-4600
24-hour Phone: (228) 938-4600
Email: pasmsrsl@chevron.com

Name and titles of stationary source personnel involved in site inspection *(accompanied site tours, provided documents and explanations):*

Name: Kathy Boyers
Title: OE/PSM Manager
Phone: (228) 934-7099
Email: khbo@chevron.com

Persons interviewed:
Timmy Lee, Area Training Coordinator
Vince Morgan, Head Console
Billy Esckelson, Fired Heater Specialist
Pete Porier, TLR Adminstrator
Chris Brignac, FERS General Team Lead
Don Harbison, Incident Investigation Coordinator
Ernest Malone, Operations Training Team Leader
Nathan Jordan, PHA Coordinator
Andy Tucker, Process Safety Specialist
Rick Crane, Corporate Asset Strategy member
Anthony Fields, Specialist Projects
Dale Mcghee, RWP
Rick Conerly, Fire Chief
Alan Zieber, Relief Specialist
Tony Price, Relief Specialist
Bobby Patten, Human Resources Manager
Ricky Cooney – Management of Change / Prestart-up Safety Review

Note: EPA's email notice of inspection dated August 25, 2014 included the following language: "This notice is also to advise you that CAA Section 112(r)(L)(6) gives employees and their representatives the right to participate during EPA CAA Section 112(r) inspections. With this notice, EPA respectively requests that you inform your employees and their representatives of this inspection and extend an invitation to them to participate in the inspection."

Date and Program Levels of Submitted Risk Management Plan (RMP)

Date of initial submission: 6/21/1999
Date of subsequent submissions: 11/7/2003, 11/26/2003, 6/28/2004, 6/12/2007, 2/5/2008, 11/10/2010, 5/2/2014 (current submission at the time of inspection), 12/17/2014 (post-inspection submission)

Process ID	Process	Program Level	Chemical Name	Quantity (lb)
1000051235	RDS (Plt 81)	1	Flammable Mixture	24,000
1000051091	Coker Plant 83	1	Flammable Mixture	490,000
1000051099	Plts 0115 HDS1 & 15 Rhen 1	1	Flammable Mixture	38,000
1000051105	Aromax Plant 24	1	Flammable Mixture	90,000
1000051236	IDW (Plt 82)	1	Flammable Mixture	27,000
1000051088	GRU Plant 66	1	Flammable Mixture	360,000
1000051106	Ethylbenzene Plant 29	1	Flammable Mixture	38,000
1000051094	Blending Tankfield	3	Flammable Mixture	60,000,000
1000051100	Plt 016 FCC	1	Flammable Mixture	910,000
1000051103	Plt 122 IsoOctene	1	Flammable Mixture	360,000
1000051102	Plt 40 LER 2	1	Flammable Mixture	430,000
1000051098	Plts 012 HDN & 013 Iso1	1	Flammable Mixture	80,000
1000051090	AFP Plants 70 and 71	1	Flammable Mixture	56,000
1000051095	Shipping Product Wharf	3	Flammable Mixture	17,000,000
1000051104	Crude 1 Plant 11	1	Flammable Mixture	230,000
1000051085	RDU 2 Plant 63	1	Flammable Mixture	60,000
1000051092	Coker HDN Plant 85	1	Flammable Mixture	130,000
1000051101	Plt 017 Alkyl 1	1	Flammable Mixture	1,200,000
1000051107	Crude 2 Plant 61	1	Flammable Mixture	260,000
1000051089	Treaters 2 Plant 68	1	Flammable Mixture	110,000
1000051084	Plt 20 LER	1	Flammable Mixture	470,000
1000051097	Olefin Splitter (Plt 10)	1	Flammable Mixture	200,000
1000051087	Sour Gas Rec Plant 59	1	Flammable Mixture	28,000
1000051086	HDS2 (165) & CCR (79&80) (includes Reformate Splitter Unit (80 Plant) Process)	1	Flammable Mixture	510,000
1000051093	Alkyl 2 Plant 87	1	Flammable Mixture	2,100,000
1000051108	Isomax 2 Plant 62	1	Flammable Mixture	380,000
1000051096	Waste Water Plant 95	3	Ammonia (anhydrous)	800,000

3. Observations

The inspection of Chevron evaluated sections of the Risk Management Program regulations (40 CFR Part 68 for the HDS2 (165) & CCR (79&80) Program Level 1 process, the following three Program Level 3 processes, Blending Tankfield, Shipping Product Wharf and the Waste Water Plant 95, and areas of applicability for all other processes) and the inspection checklist included in "Guidance for Conducting Risk Management Programs Inspections under Clean Air Act Section 112(r)." As a primary component of chemical accident prevention, the inspection also included an evaluation of the facility's compliance with the General Duty Clause[2]. The inspection included discussions with the facility representatives regarding a myriad of issues related to the operation of its processes, the facility's risk management program, a review of paperwork associated with the facility's most recent Risk Management Plan (RMP), and a tour of the facility. An inspection in-brief and out-brief were conducted. Observations from the Risk Management Program inspection at Chevron are discussed below.

Reformate Splitter Unit (80 Plant) Process / HDS2 (165) & CCR (79&80)

The Clean Air Act Section 112(r)(1), General Duty Clause (GDC), requires owners and operators of stationary sources producing, processing, handling or storing such substances have a general duty to identify hazards which may result from releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur. Although Chevron classifies Plant 79 & 80 as a Program Level 1 process, they are implementing Program Level 3 management systems to comply with Program Level 1 and GDC requirements.

The GDC requires the facility to identify hazards which may result from releases.

- Process Hazard Analysis
    - The inspection team reviewed the latest PHA for the Plant 80 CCR Reformate Splitter. This PHA was completed on January 23, 2012, before the November 15, 2013 accident. The PHA did not address any previous loss or near loss incidents related to F-8007 bogging events during startup. The F-8007 Loss Incident Investigation Report of November 15, 2013 identified three F-8007 bogging events during startup in 2011. One of these bogging events (February 22, 2011) was even investigated as an environmental loss incident and a safety near-loss incident.

- Incident Investigation
    - Chevron examined previous F-8007 startups (19) for the facility's incident investigation of the November 15, 2013 accident. Prior to the November 15, 2013 incident, Chevron determined F-8007 experienced six bogging events. The bogging events are listed below.

[2] Section 112(r)(1), also known as the General Duty Clause (GDC), makes the owners/operators of facilities with regulated hazardous substances responsible for managing chemicals safely.

Date	Duration of Bog (Minutes)	Event Description	Response
1/21/2011	4	After 3rd & 4th burners lit	Reduced fuel & added air
	3	After 5th burner (1 hour between 4th and 5th)	Reduced fuel & added air
2/22/2011	120 minutes of flameout	After 6 burners lit – flameout after put in automatic control – LI 8391	Restart
12/30/2011	1	After first 4 burners lit	Added air rapidly
6/29/2012	11	Occurred while holding with 3 burners lit	Added air rapidly
9/2/2012	2	After last burner lit	Reduced fuel gas and added air then decided to chop
11/26/2012	54	After 4 burners lit and with 4 more burners lit toward the end of the bog	Reduced fuel gas rate to level prior to lighting last 4 burners and slightly added air

Definition used for bog: >1500 ppm combustibles and <2.0% O_2.

Only the 2/22/11 event was reported and investigated as a near loss. The other five bogging incidents were never investigated.

The GDC requires the facility to design and maintain a safe facility taking such steps as are necessary to prevent releases.

- **Process Safety Information**
  - At the time of the November 15, 2013 accident, safe limits for combustibles and oxygen in the F-8007 furnace were not accurate and outside of the defined safe operating limits. The incident investigation report of the November 15, 2013 accident stated that a warning box in the F-8007 start-up procedure defined bogging as >1,500 ppm combustibles and <2.0% oxygen. However, actual alarm setpoints at the time of the incident were >1,000 ppm for combustibles and <1% for oxygen.
  - Based on field verification, the F-8007 Reformate Splitter Reboiler Fuel Gas Valves piping and instrument diagram (P&ID) was not accurate.
    - The line bypassing valves XV-0187 and XV-0197 was observed in the field to include a local pressure indicator PI-1030 and an instrumented pressure indicator transmitter PIT-0241 just before the bypass line rejoined the main fuel line. These pressure indicators were not included in the P&ID.
    - The P&ID did not show the instrumentation connecting pressure indicators PI-600 and PI-601 with pressure control valve PCV-0401, which was observed in the field.
  - Based on field verification, the F-8007 Reformate Splitter Reboiler P&ID was not accurate.

        - For each fuel line leading into the furnace, the local pressure indicator line had an extra ¾" manual valve that was observed in the field but not shown on the P&ID.

- **Operating Procedures**
    - Chevron's Refinery Instruction (RI-113) provides guidelines for preparing Operating Procedures. According to RI-113 (Section 2.0; 2.1 Overview), "a written step by step procedure shall be used (except for Normal Operations [...]) for each phase of operation." Additionally, written, step by step, properly signed off procedures shall be used if a task is considered either "Critical", "Difficult" or "Complex."
        - The operation to light F-8007 met the criteria to be defined as "Critical," "Difficult" and "Complex" because the operation to light F-8007 was a task that could result in personal injury, not a routine duty or task, composed of complex steps and required coordination of three or more operating personnel in different operating areas (outside and at console). However, inspectors were initially told by employees during interviews that this was a "Normal Operation" which only required use of a "Job Aid" ("any written, step by step, procedural document that does not meet the listed criteria, to be used as guidance only and is considered to be outside the definition and use as an operating procedure.")
        - As explained by the Facility in response to EPA's Information request for the operating procedure used at the time of the November 15, 2013 incident, "A procedure for setting minimum flow for F-8007 did not exist prior to November 15, 2013. The steps for properly and safely setting the minimum flow rate of fuel gas to the furnaces in Plant 80 were included in Job Aid 080-JA-4401, 'Setting Minimum Flow at Furnace (F-8007)'. Following the November 15, 2013 incident, Chevron created a procedure (with the previous job aid as the basis) for 'Setting Minimum Flow for F-8007.'
    - When the signed-off Furnace Startup (F-8007) Operating Procedure for the startup prior to the accident was requested by inspectors, Chevron provided the signed-off Operating Procedure No. 080-NP-4401. Page 4 of the Operating Procedure showed a boxed "Warning" (shown below) concerning the warning signs for a "bogged" heater. The incident investigation findings stated that the operating procedure was unclear because of an "and" rather than an "or" in describing the "warning signs" for a "bogged" heater and said "dangerous condition" rather than "explosion hazard."

WARNING

A heater that is operating with insufficient air for complete combustion is called a "bogged" heater. This condition is evident by Low O2 (<2.0%), high CO (>500ppm), high combustibles (>1500ppm), a reduction in the process outlet temperature from the heater and possibly black smoke coming out of the stack. This is a dangerous condition due to the build-up of un-combusted fuel in the firebox. Never add air to a bogged heater. Immediately reduce fuel until the O2, CO and combustibles readings return to normal levels. After the bogging heater has been cleared, additional air can be added by opening the stack damper or air registers. The fuel flow can now be increased to return to normal outlet temperatures

- Based on the Incident Investigation report for the November 15, 2013 incident and interviews conducted by inspectors, a copy of the Operating Procedure "080-NP-4402 - F-8007 Furnace Dry Out" used at the time of the incident was requested. A review of documents received showed the earliest version of 08-NP-4402 F-8007 Furnace Dry Out received by inspectors dated "7/30/2013, Rev. 6," did not contain any "Warning" box in reference to consequence of deviation involving low oxygen. Another copy of Operation Procedure "080-NP-4402 – F-8007 Furnace Dry Out" was received by inspectors which showed a revision date of 9/9/2014, Rev 5 (a later revision date, but lower revision number). This revision of the Operating Procedures did show a "Warning" box which clearly indicated that a consequence of a firebox which is short of air could result in an explosion unless fuel is decreased.

- The facility identified multiple instances throughout the facility's investigation report of the November 15, 2013 incident, that the console operators ignored alarms for the process. Additionally, based on interviews, console operators indicated they regularly ignored or shut-off alarms during furnace lighting operations because there were many alarms, including the alarms for air pollution permitting requirements. Additionally, a 2011 survey of employees (presumed to be management and staff) resulted in comments which included indications of many employee's dissatisfaction with implementation of safety and reliability related practices at the refinery. One console operator provided the following comment related to alarm management practices for the survey prior to the November 15, 2013 incident:

  - "*I am mainly a console operator in the plants that I am qualified to work. Recently, in end of run operations on our first stage reactor, members of engineering AND the Leadership Team had operations running in a mode that had never been seen before. In theory, the mode is a great idea. Operations was given the guideline to operate until we hit an alarm. In daily talks of how the reactor was being run at that time, and what would happen if we continued in that posture, operations was still pushed to run in this mode. When alarms were met on the reactor, they were taken out of the scheme and operations was told to ignore those alarms and to push the reactor further to meet a yield calculation that some engineer or planner had projected the unit to be in. It got to the point where, operations is working nightshift weekends, and has no support from any* *member of the Leadership Team or engineering. Alarms are there for a reason. The company who designed these reactors know what they can handle and what they can['] t. It was very clear to all operators in my unit that safety was least important to ANY member of the Leadership Team, and profitability was the MOST important…* "

- **Training**

    - After Chevron's February 22, 2011 bogging event, the facility's investigation report for that incident proposed to ensure training on the importance of oxygen, carbon monoxide, and combustible alarms by building it into the operator development program and refresher training. The facility provided inspectors the F-8007 training guide materials, including procedures and hazards on which operators were trained following the February 22, 2011 incident and prior to the November 15, 2013 incident. The information provided, outlined in the Operating Limits and Consequences of Deviation (OP /COD) in the Electronic Operating Manual did not include the following information:

        - Table 5.8 of the manual, *Consequence of Deviation F-8007 Stack Oxygen Concentration*, does not mention a LOW Oxygen concentration as a possible bogged fired heater situation and potentially explosive.

Table 5.8 Consequences of Deviation F-8007 Stack Oxygen Concentration

Process Variable	Safe Lower Limit	Safe Upper Limit	Normal Operating Range	Consequence of Deviation	Avoidance Steps
F-8007 Stack Oxygen Concentration 80-AI-0182A %	2	7	3-5	HI = Inefficient operation and higher than normal NOx emissions. • LOW = Smoking of heater stack or high CO readings	• HI = Adjust burner air registers or stack damper. • LOW = Adjust burner air registers or stack damper. Visually inspect firebox. • LOW = Reduce fuel gas if adjustments do not work. • LOW/HI = Compare O2 readings of stack analzyer vs. radiant O2 analyzer to ensure oxygen analyzer is working properly.

        - Table 5.9 of the manual, *Consequences of Deviation F-8007 Stack CO Concentration*, does not mention a HI CO concentration as a possible bogged fired heater situation and potentially explosive.

Table 5.9 Consequences of Deviation F-8007 Stack CO Concentration

Process Variable	Safe Lower Limit	Safe Upper Limit	Normal Operating Range	Consequence of Deviation	Avoidance Steps
F-8007 Stack CO Concentration 80-AI-0182B	N/A	80F1COV alarms at 50ppm. This is a yearly average that alarms on 1 minute snaps. 80F1CO3HROL 3hour average that alarms at 22.5lbs/hr.	<50ppm <22.5lbs/hr.	HI CO can be a recordable emission exceedance if not addressed.	• Check O2 concentration to ensure enough excess air is available for complete combustion. • Check temperature of firebox. Arch temperatures <1250°F can yield high CO levels. The 50ppm limit will be exceeded during start-ups but should not be counted as an exceedance due to the yearly average. Stay below the 3 hour lbs/hr average limit during start-ups. • Verify equal air register settings for in service burners. Verify out of service burner registers are closed. • Verify proper flame appearance. Look for plugged burners.

- Table 5.11 of the manual, *Consequences of Deviation F-8007 Radiant Combustibles Concentration*, does not mention HI combustibles as potentially explosive.

Table 5.11 Consequences of Deviation F-8007 Radiant Combustibles Concentration

Process Variable	Safe Lower Limit	Safe Upper Limit	Normal Operating Range	Consequence of Deviation	Avoidance Steps
F-8007 Radiant Combustibles Concentration 80-AI-0184B ppm	N/A	<1000ppm	<100ppm	Sign of poor combustion. • Possible low xs air and inefficient heater operation. • HI combustibles can lead to a severly bogged heater.	• Check O2 concentration to ensure enough excess air is available for complete combustion. • Check temperature of firebox. Arch temperatures <1250°F can yield high Combustibles levels. •Verify equal air register settings for in service burners. Verify out of service burner registers are closed. Verify proper flame appearance. Look for plugged burners.

- Nowhere in the OP/COD were there actions identified to take to recover from a bogged fired heater situation, or emergency actions in the event of a bogged situation.

Furthermore details of the November 15, 2013 incident reveal inadequate training of personnel, as evidenced by the lack of full recognition of the extent of the bogging and misinterpretation of a bogged heater as potentially explosive.

- Eight field and console operators were working on the F8007 console unit during the November 15, 2013 bogging event and subsequent incident. Not all the operators completed the computer based training specifically related to Fired Heaters; for 5 of the 8 operators, there were no records of training titled "*GMOCP/GFOTP1 WEBBASED MODULE - FIRED HEATERS.*" One of the three operators that completed the training had completed the training on September 23, 2010, over 3 years prior to the incident. Additionally, from the 2011 survey of employees (described earlier in operating procedures), the following comment about specific console training was provided:

    - *"To improve efficiency, provide unit specific console training. Give information to get all 4 crews operating in the same direction."*

- The facility's most recent RMP indicates there was a revision of training programs on January 5, 2013. The facility's bogging event /accident occurred November 15, 2013. The facility's most recent RMP submission, May 2, 2014, indicates the facility had not yet revised their training program as a result of the accident.

- **Emergency Response**

    - Inspectors requested the 'emergency response pre-plan for Split Reformate Unit area.' The plan provided by the facility, *Process Pre-Incident Plan*, listed the only potential emergencies for the area as an H_2S leak, LPG leak, and benzene leak. The plan did not mention a bogging event associated with the furnace as a potential emergency.

    - Chevron's *Process Pre-Incident Plan* only provided technical information (equipment), target hazards, and water requirements for the Split Reformate Unit area. The plan did not provide steps for mitigation of any potential emergencies listed for the Split Reformate Unit.

    - No procedures reviewed for the F-8007 furnace operation developed prior to the November 15, 2013 accident specified that employees need to evacuate the area when the fired heater becomes bogged.

<u>**Other Processes Reviewed**</u>

- **Process Safety Information** - 40 CFR 68.65(d)(1)(ii) requires that the owner or operator include in the process safety information, information pertaining to piping and instrument diagrams.

    <u>Blending Tankfield</u>

    - Based on field observation, the T-282 P&ID was not accurate.

        - The P&ID indicated a local pressure indicator PI 1801. However, this pressure indicator was not observed in the field.

- The P&ID indicated vacuum breaker PRD 9869 was set at 2.5 psia. However, the tag on PRD 9869 observed in the field indicated PRD 9869 was set at 6.7 psi vacuum (8 psia).
- The P&ID indicated local pressure indicator PI 1805 (located on top of T-282) had a flange upstream of it. However, the inspection team observed three manual valves rather than a flange upstream of PI 1805.
- The inspection team did not observe labels on the following temperature elements: TE 1799 and TE 1797.

- Based on field verification, the T-271 and T-270 LPG Operating Storage P&ID was not accurate.

  - The P&ID indicated the valves upstream and downstream of PRD 9549 were locked, but these valves were car-sealed.
  - The P&ID indicated PRD 9588 was located downstream of the branch of P4321-6"-N with P4820-8"-N, but the PRD was located upstream of the branch.
  - The P&ID indicated both T-270 and T-271 had the same temperature indicator, TI-8111, but the temperature indicator on T-271 was TI-8112.
  - The P&ID indicated both T-270 and T-271 had the same level alarm, LA-5160; local pressure indicator, PI-6178; and pressure alarm, PA-5152. T-270 and T-271 should have instrumentation with unique tag numbers.
  - The local pressure indicator observed in the field did not have a label. Therefore, the inspection team could not confirm if the local pressure indicator was PI-6178 or a different local pressure indicator.
  - The P&ID did not include an instrumented temperature element, 34-TE-0361, that was present in the field.
  - The P&ID indicated a local pressure indicator on line P4321-6"-N, downstream of AOV 1047 that was not observed in the field.
  - The P&ID indicated AOV 1047 is an 8"x 6" valve. However, in the field AOV 1047 was observed to be 8" and there was a separate 8"x6" valve upstream of AOV 1047 that was not indicated in the P&ID.

<u>Waste Water Plant 95</u>

- Based on field verification, the D-9520 Ammonia Storage Tank P&ID was not accurate.

  - The inspection team observed valves on the level gauge lines at the bottom of the tank that were not indicated on the P&ID.
  - The manual valves upstream of PRD 3020 and PRD 3019 were observed in the field to be locked open. However, the P&ID did not indicate these valves to be locked open.

- **Process Hazard Analysis** - 40 CFR 68.67(f) requires that at least every five years after the completion of the initial process hazard analysis, the process hazard analysis should be updated and revalidated.

    - Chevron Pascagoula provided a spreadsheet containing historical PHA dates for plants and units as early as 1997. Only a single date is provided for each PHA. According to a note on the schedule, PHA dates listed in the schedule for 2002 and onward are the start date of the PHA. PHA dates prior to 2002 are the end date of the PHA study. PHAs for 2002 and onward are not adequately documented to demonstrate the PHAs were conducted on a 5-year schedule. The spreadsheet does not provide the PHA completion date, the PHA recommendation report out meeting date, the PHA study publication date, or any other event that could signify the completion of the PHA study. Thus, PHAs may be started prior to the 5-year anniversary date, but this does not guarantee that the PHA for the process has been updated at least every 5 years. For example:

        - The most recent PHA for the Waste Water Plant 95 (a Program Level 3 process) may have been late. The start date is listed as August 26, 2013. However, the previous PHA had a start date of March 31, 2008. The Waste Water Plant 95 PHA may not have been updated at least every 5 years.

        - The LPG Area, Areas 7 and 8 – Plant 34 (a Program Level 3 process) has a late PHA in its PHA history. A PHA was completed on June 18, 2001, but the subsequent PHA began on October 9, 2006. The LPG Area PHA was not updated at least every 5 years.

- **Management of Change** - 40 CFR 68.75(d) requires that if a change results in the process safety information, such information shall be updated accordingly.

    - As noted above in the process safety information for the Blending Tankfield, the P&ID for T-271 did not depict an instrumented temperature element, 34-TE-0361, that was observed in the field. Specifically, in response to a request for any related MOCs, the facility provided "M2014276 - T-271 Outage- I&E Repairs". This MOC was primarily focused on replacing a level gauge, but its scope additionally included "Also, Thermowells, Temperature elements and Power Isolation Switches will be replaced, along with replacing the Magnetic Level Gauge and installation of LED Lights. 34-TE-0361 was not specifically identified in the MOC package. The P&ID for T-271 did not depict an instrumented temperature element, 34-TE-0361, that was observed in the field. The MOC indicated an updated P&ID was submitted to Drafting by 6/23/2014.The P&ID reviewed during the plant walkthrough was updated 2/27/2014.

- **Risk Management Program Applicability** - 40 CFR 68.150 requires the owner or operator to submit a single RMP for all covered processes.

    - The facility did not identify its flares as a covered processes in its RMP registration. The facility provided its estimates of flammables in its flare systems, however its estimates only included gas phase quantities in piping. The facility did not include the quantities of flammables in knockout and/or seal drums, particularly liquids that may accumulate in large relief scenarios. Additionally, the facility considered each flare to be a separate process, except for Flares 5 and 6, which it treated as tied together in one process. Flares 1 through 6 are cross-connected and are all tied into a common flare gas recovery system. Refinery personnel indicated the jump-overs between flare headers are normally closed. If Flares 1 through 6 are considered to be one process for RMP, it would have greater than the threshold quantity of flammables based on the facility's gas-only flammables estimates.

Signatures:

Lead Inspector and Region 4 RMP Coordinator:

__________________________ _______________

Deanne Grant Date

Approved by Section Chief:

__________________________ _______________

Robert W. Bookman Date